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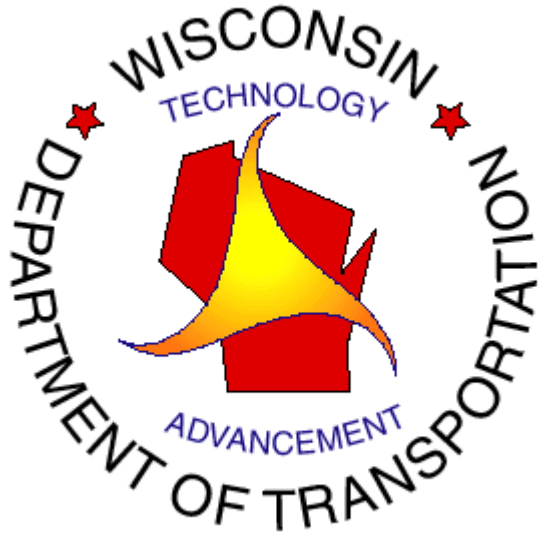
Curb Ramp Detectable Warning Fields: Truncated Warning Dome Installations

Technical Note



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16. Abstract

A technical note that includes proper and improper installations of curb ramp detectable warning fields, truncated warning domes. This note addresses the field orientation and elevation.

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Curb Ramp Detectable Warning Fields: Truncated Warning Dome Installations Technical Note

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Curb ramp detectable warning fields (CRDWF) are required by the 1991 American with Disabilities Act Accessibility Guidelines (ADAAG) to be installed on all curb ramps. The Wisconsin Department of Transportation has adopted CRDWF into their specifications. The installations of CRDWF are to run parallel to the direction of travel that the ramp is orientated to. The CRDWF orientation is not to be dictated by the direction of the cross walk. The CRDWF is to run parallel to the ramp to allow wheel chairs unimpeded access to the road or sidewalk. The dome pattern must run parallel so that wheel chairs can run smoothly up and down the ramp. See Figures 1 and 2 for examples of proper alignment of CRDWF.

Figure 1: Proper alignment of CRDWF

Figure 2: Proper alignment of a CRDWF

Blind pedestrians do not gain directional cue from the orientation of the dome pattern. Instead they are trained to use the location of the curb cut and other cues that the ramp may give including ramp orientation. WisDOT Type II ramps should be specified whenever possible. This is consistent with 11-25-30 (http://dotnet/fdm/11/11-25-30.pdf) of the WisDOT Facilities Development Manual. Figure 2 shows orientation of the curb ramp that would give proper cue to a blind pedestrian crossing an intersection. The CRDWF is also orientated parallel to the direction of travel for the curb ramp.

Shown in Figure 3 and Figure 4 is a CRDWF that is improperly orientated. CRDWF dome pattern should instead run parallel with the direction of travel of the curb, parallel to the direction of travel of the ramp. The direction of the curb ramp takes precedence over the crosswalk direction.

Figure 3: Improper installation of a CRDWF: dome pattern is to run parallel with ramp direction of travel.

Figure 4: Improper installation of a CRDWF: The dome pattern is not run parallel to the direction of travel on the ramp.

Elevation of the CRDWF should be equal to the elevation of the curb cut to allow drainage of the installation. Equal elevations of the CRDWF, curb ramp and curb at the curb interface are also required so that that no tripping hazard or an impediment to wheel chairs and walkers is present.

Figure 5: Proper installation of CRDWF, elevation equal to curb interface

Figure 6: Proper installation of CRDWF, elevation equal to curb interface

In the 2004 construction season some CRDWF installations were recessed to help increase the durability of certain plastic products. These products have since been removed from the approved lists. Currently, approved products have the durability to resist damage from snow removal operations. Recessing of domes to help durability is no longer warranted. This list can be viewed at http://dotnet/dtidcons/apprvdlst.htm or www.infosite4u.com . The installation as shown in Figure 7 and Figure 8 are incorrect and may violate the ADAAG 4.5.2 by having a change in elevation exceeding one-quarter inch. (http://www.access-board.gov/adaag/html/adaag.htm#A4.5.1).

Figure 7: Improper installation of CRDWF, too low in elevation at curb interface

Figure 8: Improper installation of a CRDWF, too low in elevation at curb interface

CRDWF are to be installed 6 to 8 inches from the face of curb. With most curb heads at a width of 6 inches leaves the installers some leeway in the installation allowing for up to two inches between the back of curb and the CRDWF. For installations on a radius the leading edge of the detectable warning field is to remain within the 6 to 8 inch offset from the face of curb as required. The opposite corner adjacent to the curb will be a varying distance because of keeping the CRDWF parallel to the direction of travel as shown in Figure 9.

Figure 9: CRDWF installation on radius

CRDWF as specified in the ADAAG 4.7.7 (http://www.access-board.gov/adaag/html/adaag.htm#4.7) should be placed the full width of the ramp. WisDOT along with FHWA Wisconsin Division has interpreted the full width to be 4 feet in width in most situations. The five-foot curb cut specified by the department in the standard detail drawings allows 6 inches of transition room to the ramp flares on each side of the CRDWF. If a ramp is wider then typical, alternate widths should be considered for CRDWF. Figure 10 shows a ramp width that is wider than a typical ramp as specified by the department and qualifies for a wider CRDWF.

Figure 10: Curb ramp wider than the Typical 5 feet qualifying it for an alternate CRDWF width.